



## Creep Behavior of Solder Spheres at Small-Length Scales

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- Importance of Testing solders at Small Length Scales
  - Smaller volume induces faster cooling rate, and finer microstructure than “bulk samples”
  - Stress state in solder sphere is likely to be different than that in bulk solder
  - Amount of Cu dissolved and intermetallic morphology may also vary at solder sphere level
  - - Significant impact on mechanical behavior

# Educational Activities

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- **Dale Morin**, a high school teacher at Northwest High School and a participant in the outreach program of the NSF Career Award with Prof. Chawla, was selected to the **Materials Camp for High School Teachers**.
- **Materials Week** is a week long, hands-on laboratory experience to assist teachers to use applied engineering techniques in the classroom. Emphasis will be on automotive issues and materials science engineering principles.

**Outcome:** Participating teachers will leave with a comprehensive series of low /no cost laboratory demonstrations in applied science to use in chemistry, physics, math, technology, industrial arts.

## **Partners:**

- ASM Detroit Chapter
- National Science Foundation EMTECH (Enhancement of Materials Technology for Manufacturing)

